INYO COUNTY, CALIFORNIA

DRAFT COMMENTS ON

The Draft Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada

Prepared for California Agencies Reviewing the Yucca Mountain DEIS

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Introduction

Inyo County is currently preparing its response to the U.S. Department of Energy's *Draft Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada.* DOE is now conducting a series of public hearings on the Yucca Mountain DEIS, and has held one hearing in California (Lone Pine, November 4, 1999). The County submitted verbal comments at the November 4 hearing through four distinct organizations (Inyo County Board of Supervisors, Inyo County Environmental Review Board, Inyo County Planning Department, and the Southeast County Citizen Advisory Committee). In coordination with these bodies, concerned citizens, and representatives from several of Nevada's Affected Units of Local Government, Inyo County staff is developing a body of commentary on the DEIS for review and adoption (mid-January) by the Inyo County Board of Supervisors as the County's official position on the Yucca Mountain DEIS. The text of this DRAFT represents the current state of our commentary, is largely reflective of the view of the Inyo County Board of Supervisors, but *has not yet been completely reviewed or adopted by* the Inyo County Board of Supervisors.

Background

The U.S. Congress, in the Nuclear Waste Policy Act of 1982, directed the Department of Energy (DOE) to investigate potential sites for the location of an underground geologic repository to contain the growing volume of high-level radioactive waste and spent nuclear fuel (derived primarily from the electric industry's nuclear reactors). The Nuclear Waste Policy Act initiated a site selection process for a potential geologic repository. By 1984, nine sites in Washington (1), Nevada (1), Utah (2), Texas (2), Louisiana (1), and Mississippi (2) were identified as possible candidates for a repository. DOE prepared environmental assessments on these sites in 1986, three of which were subsequently recommended, by DOE, to President Reagan. The President approved the three candidate sites (Hanford-Washington, Deaf Smith County-Texas, and Yucca Mountain-Nevada). In 1987, Congress amended the Nuclear Waste Policy Act, mandating that only Yucca Mountain be studied for development of a deep geologic repository.

Role of the Inyo County Yucca Mountain Repository Assessment Office

The 1987 Nuclear Waste Policy Act Amendment authorized funding for the State of Nevada to conduct its own research and oversight of the repository process and included provisions for local government participation in the process by naming the situs county (Nye County, Nevada) an *affected unit of local government* - and providing the Secretary of Energy with the discretion to designate other contiguous jurisdictions as affected.

The Act includes provisions for counties, when designated as affected by the Secretary of Energy, to participate in oversight and impact assessment activities relating to characterization of the site. The Secretary subsequently named Clark and Lincoln Counties in Nevada as affected units of local government. Inyo County requested "affected unit" status on August 3, 1988 (several counties in Nevada made similar requests). Following denial of its request, Inyo County petitioned the Ninth Circuit Court of Appeals for judicial review of the Secretary's action. After a successful appeal, Inyo County was designated as an "Affected Unit of Local Government" on May 20, 1991.

Utilizing oversight funding provided by the Department of Energy, Inyo County Planning Department administers the Inyo County Yucca Mountain Repository Assessment Office (Independence, California). The office has one and one-half full time staff and a budget of $250,000-$300,000 per year. This office monitors State and Federal legislative actions, attends meetings with other *affected units of local government*, the Department of Energy, the Advisory Committee on Nuclear Waste, Nuclear Waste Technical Review Board, Nuclear Regulatory Commission, and various Nevada state agencies.

Inyo County is currently engaged in several multi-agency research projects. These include a three-year program with Nye County, Nevada, utilizing DOE grant funding to conduct surface (spring) water sampling, geochemical analysis and watershed characterization of areas in and east of the Funeral Mountain Range (a set of mountain blocks defining a portion of northeastern Death Valley) to determine if there exists hydraulic connectivity between the Lower Carbonate Aquifer beneath Yucca Mountain, Death Valley and southern Amargosa Valley domestic water supply. We have recently participated in funding a Nye-Clark-Inyo County aeromagnetic survey of territory between Death Valley and Yucca Mountain. The County also retains the services of Latir Energy Consultants (Santa Fe, New Mexico) to assist in monitoring and interpreting national-level developments in Congress and Federal energy and environmentally-focused agencies.

Inyo County Concerns With the Draft Environmental Impact Statement

Staff has identified a number of deficiencies in the Draft Environmental Impact Statement that should be addressed by the Department of Energy in the course of developing the Final Environmental Impact Statement. Primary among these deficiencies are: 1) the generalized treatment of the risks associated with transporting 77,000 tons of radioactive waste from 77 individual sites to the repository; 2) lack of thorough treatment of the risks to regional groundwater posed by the repository; and 3) uncertainties associated with the long-term performance of the repository. These and other issues are detailed below.

Transportation

The County's primary concern with the EIS is the superficial analysis of the transportation campaign necessary to move some 77,000 or more tons of radioactive waste into Yucca Mountain. In terms of near-term risk to humans, the hazards associated with transportation pose the greatest threat to populations across the nation.

The DEIS does not identify specific primary, secondary or emergency transportation routes for nuclear waste travelling through California. Specific routing decisions, in terms of the use of rail or trucks, designation of primary and alternate routes through Nevada and California, and analysis of the impacts of making the road, rail and emergency response improvements necessary to safely accommodate the waste transportation campaign are all deferred to the indefinite future. Given that Low Level Nuclear Waste is currently being transported on State Route 127 through Inyo and San Bernardino counties and shipments of transuranic waste are expected to begin using SR 127 in 2000 to move waste packages from the Nevada Test Site to the Waste Isolation Pilot Plant in New Mexico, a precedent is now being set for expanded use of the route for high-level waste and spent fuel. The DEIS, however, does not acknowledge or project the role California corridors will play in moving high-level waste and spent fuel to Yucca Mountain.

Route choice will affect the safety, cost and timing of transport operations. DOE needs to engage in a comprehensive study of this issue in order to develop a scientifically defensible, least-risk-based determination of routes. Private carriers should not be burdened with the responsibility to evaluate and choose routes. The preferred corridors should be mapped by DOE and the required roadway and emergency response improvements identified.

The transportation campaign is an integral part of the Yucca Mountain project. It is inseparable from the operation of the proposed repository. Consideration, in detail, of transportation impacts cannot reasonably be deferred to future analysis any more than other off-site impacts. Without detailed information on likely primary and secondary routes in California and the staging of shipments, it is impossible for Inyo County to evaluate the impacts of the shipping campaign on our area. It is DOE's contention, however, that the DEIS is sufficient to serve as the "umbrella" environmental impact document for future Federal transportation decisions.

The absence of meaningful treatment of the environmental impacts of the transportation component of the project is a major flaw in the Draft Environmental Impact Statement which will eventually require that DOE develop a second Environmental Impact Statement specific to transportation issues. This being the case, Inyo County objects to the use of the current DEIS as the basis for future decision-making on waste transport and will request that DOE address the full spectrum of impacts accruing to operation of the repository.

Section 180(c) Considerations

The Nuclear Waste Policy Act, Section 180(c) calls for Federal action to provide improvements in emergency response training and capability along routes designated for the transport of high-level nuclear waste and spent fuel. The virtual absence of emergency response capability on Route 127 and the isolated character and the current configuration of this roadway promise to make compliance with this part of the Act an involved and expensive exercise on the part of the Federal Government. The DEIS makes no attempt to configure or estimate the required dedications of Federal resources necessary to meets its obligations under Section 180(c).

Other necessary improvements prerequisite to regular use of SR 127 include complete reconstruction of some sections of the roadway and the construction, equipping and staffing of emergency response stations. The County and the State will be saddled with significant new costs to safeguard its residents. The EIS fails to address, in any manner, the significant fiscal and possibly significant environmental impacts of meeting these obligations. These impacts too, are inseparable from the issue of the repository itself and need to be quantified by the EIS.

Groundwater

Contamination of the deep regional aquifer, which appears to underlie both Yucca Mountain and the Tecopa-Shoshone-Death Valley Junction area, poses the most significant long-term threat to the citizens and economy of Inyo County. DOE's strategy for the repository is to utilize man-made and natural barriers to retard the flow of contaminants from the repository, with the expectation that no radionuclides will reach the water table for thousands of years.

Inyo County, in conjunction with Nye and Esmeralda Counties (Nevada) and the USGS, have been engaged in groundwater research which points to a direct connection between water in the deep 'Lower Carbonate Aquifer' beneath Yucca Mountain and surface discharges (springs) in Death Valley National Park (*"An Evaluation of the Hydrology at Yucca Mountain: The Lower Carbonate Aquifer and Amargosa River"*, Inyo & Esmeralda Counties, 1996, and *"Death Valley Springs Geochemical Investigation"*, Inyo County, 1998). These studies were funded with DOE grant money and done to a high standard of scientific accuracy, being subject to Federal (USGS) quality assurance and quality control measures.

The 1996 study of the Lower Carbonate Aquifer suggests the possibility of a significant degree of hydrologic connectivity between the Lower Carbonate Aquifer lying beneath the proposed repository and surface manifestations of the same formation within Death Valley National Park. The study also indicated that populations in Amargosa Valley (including the California towns of Death Valley Junction, Shoshone, and Tecopa) utilize groundwater which may be hydrologically contiguous to a southward extension of the Lower Carbonate Aquifer.

The 1998 investigation of the geochemistry of spring waters in the mountains east of Death Valley (some of which are developed to serve domestic and commercial uses in

Death Valley) gave indications that these spring waters may be dominated by input from the Lower Carbonate Aquifer, perhaps via relatively fast pathways through fractures in the formation.

Nowhere in the Draft Environmental Impact Statement does DOE address our findings, either to acknowledge or deny the implications of these studies with regard to potential pathways for contaminants to reach human populations or a National Park. Our studies, which have been available to DOE for some time, are absent from the estimated 50,000 pages of technical background material which went into development of the DEIS. The County considers this a critical oversight on the part of DOE, which should be rectified by serious consideration of our scientific work and placement of our findings in the proper context.

Repository Design

The Draft Environmental Impact Statement does not use a specific repository/waste package design scenario as a base case from which to evaluate environmental impacts, rather, the DEIS analyzes a series of design configurations which are expected to bound the range of possible designs and related impacts. After release of the DEIS, DOE - in response to a Nuclear Waste Technical Review Board critique of the original proposal for a "hot" (high thermal loading) repository - has opted for a "cool" design.

The cool repository includes a tunnel/waste package configuration that reduces the temperature in the excavation by increasing the spacing between emplacement tunnels and changing the mix of waste types such as to keep the rock walls of the repository below the boiling point of water. The choice of a cooler repository design was made without waiting for completion of the environmental review process and appears, to the best of our knowledge, to be based on DOE's finding that the cooler design is easier to model, not because there is evidence that this is an otherwise superior alternative.

The change of repository design from a "hot" repository to a "cool" repository has major and insufficiently researched implications for groundwater flow and groundwater chemistry. It is DOE's contention that the DEIS is sufficiently broad in its treatment of repository design variations to cover the switch to a cooler repository, however, recent technical discussions on repository performance conducted by the Advisory Committee on Nuclear Waste and the Nuclear Waste Technical Review Board reflect considerable uncertainty in our understanding of how the repository will behave under the cooler design. We do not believe that the current state of knowledge on repository performance lends itself to a determination that the DEIS is adequate to support a decision on which design should be adopted.

All of the design alternatives considered in the EIS lead, ultimately, to a repository that is expected to leak (albeit at different rates depending on the particular choice of tunnel configuration, waste packaging, assumptions regarding geology, climate, and the response of the waste packages to the repository environment).

DOE's proposal calls for backfilling of the emplacement drifts and closure of the repository between 50 and 300 years after disposal operations begin. Backfilling and closing the repository prohibits monitoring of the waste packages for structural integrity

and increases the difficulty and cost of retrieving the waste should a radioactive release occur or new findings and technologies emerge which provide for safer forms of storage or reuse of the nuclear material.

Contrary to the expectation incorporated into DEIS that significant radioactive releases from the repository are inevitable, DOE must adopt as its goal complete and permanent isolation of radioactive material from humans. In our estimation, the only way to both meet this goal and to mitigate the many uncertainties associated with repository performance is to have a permanently open and thoroughly monitored facility. DOE should not attempt to anticipate a closure date for the repository and should quantify, to the extent possible, the fiscal impact of funding a closely monitored facility capable of retrieving and replacing failed waste packages.

Socioeconomic Impacts

At present, the least developed section of our draft DEIS commentary is our attempt to address possible economic and "stigma" effects of the siting of the repository. The DEIS does not discuss, acknowledge, or deny the potential negative impacts of repository operations on the regional economy.

Use of State Route 127 for transport of high-level waste could result in accidents on the roadway that could - even absent release of radioactive materials - affect use of the route by tourists and commercial operators. In light of the economic benefits received by the County and the State of California from Death Valley National Park, the security and public perception of State Route 127 is of utmost importance.

The project could also affect property values in the southeastern portion of the County, an area that is likely to experience considerable growth during the 30-year time-span during which the repository would accept waste. The DEIS, if it is to truly function as a tool for analyzing the impact of the repository, must attempt to project the economic consequences of the designation of specific waste hauling routes and of repository contamination of the regional groundwater system on local economies.

Compliance With the National Environmental Policy Act

Inyo County is still evaluating the DEIS for compliance with NEPA. This section summarizes a few of the concerns we have identified to date.

The Yucca Mountain Environmental Impact Statement is provided significant exceptions to normal NEPA requirements. The Nuclear Waste Policy Act specifically exempts DOE from considering the need for a repository, the timing of availability of the repository, alternatives to geologic disposal, or alternatives to the Yucca Mountain site. These exemptions have been interpreted by DOE to limit analysis of project alternatives to a discussion of a range of repository designs and generic treatment of varying combinations of rail and truck transport.

The DEIS does include two alternative scenarios to developing Yucca Mountain which are recognized by DOE (in the DEIS itself), as untenable. DOE states that the alternatives are included simply for comparison with the proposed action and are unlikely

to be implemented should the repository not be built. Both alternatives evaluate, in a uselessly generic manner, the consequences of leaving radioactive waste concentrations at their present locations for 10,000 years. The first scenario assumes that we, as a nation, retain institutional control over the material for the entire time span. The second scenario assumes that institutional control over the material is lost after 100 years. Neither scenario meets normal NEPA requirements that viable project alternatives be explored via the DEIS.

For several major classes of environmental impact, DOT sidesteps preparation of any sort of project-specific analysis, substituting references to other agencies' regulatory authority for meaningful quantitative analysis and risk assessment. For instance, DOE addresses transportation accident hazards by assuring readers that transport of waste will occur in accordance with U.S. Department of Transportation regulations.

The DEIS uses very limited "Regions of Influence", (specific to each type of impact e.g. transportation, groundwater, socioeconomics) to bound the area under consideration for analysis. This restricts the analysis to direct impacts and does not allow for the identification of indirect (offsite) impacts.

The DEIS is narrowly scoped, to the degree that comprehensive analysis of the impact of the proposal is impossible. It is unclear at this point whether a Supplemental EIS or a new EIS is needed. Typically, a Supplement needs to be done if new information or circumstances become apparent. In the case of Yucca Mountain, most of the information DOE would require to correctly draft an EIS is already available, so the case could be made that the DEIS is fundamentally flawed, cannot be readily corrected, and requires complete reworking and recirculation.

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